THE ARKANSAS RIVER BASIN PROJECT

by

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Chapter I

INTRODUCTION

The Federal government is currently spending billions of dollars in developing this country's inland water resources. The primary benefit to be derived from these multi-purpose projects is often the resulting transportation feature of a navigable waterway. It is the purpose of this Report to describe such a project: the Arkansas River Basin Project.

There are many questions to be answered concerning such a project, but the principal ones are-- Is the Arkansas River Basin Project economically sound? Has the Federal government given the taxpayer the most for his tax dollar or should the money have been invested elsewhere?

The above represent but a few of the questions that this Report will attempt to answer. To give a clearer understanding of this project a brief history of the project and its' general provisions will be discussed first.

Except for travel in the dugout canoe, which held a place of importance in the beginning of trade on the Arkansas River, the first trips to Fort Smith and Fort Gibson were made by keel boats with a capacity of 10 to 20 tons.[1] They were sometimes brought upstream by use of a cordelle (a rawhide tow line fastened to the boat and pulled by 20 to 30 men walking along the river bank). By 1824, small steamboats with keel boats in tow were traveling up the Arkansas into Oklahoma. Creek Indian emigrants from the south were brought up the river into Indian Territory by steamboat in 1827-1828 and supplies and soldiers were transported to Fort Gibson in 1834. Early commercial activities on the Arkansas were centered about 50 miles above the mouth of the river at Arkansas Post, the first white settlement west of the Mississippi River. During the heyday of river navigation, prior

to the construction of railroads in 1871 and 1872, steamboats carried supplies and passengers upstream to Little Rock and Fort Smith, Arkansas; Fort Gibson, Oklahoma, and to many intermediate landings. Much of the downstream cargo consisted of cotton and timber.

The first project for improvement of the Arkansas River was authorized by the River and Harbor Act of 1832.[2] This project, together with several others adopted prior to the turn of the century, provided primarily for snagging and dredging and for construction of works to improve navigation conditions. The last of the earlier projects provided for improvements of the river for navigation from its mouth to Grand (Neosho) River, which has its confluence with the Arkansas at a point near Muskogee, Oklahoma, a distance of 465 miles, by snagging limited dredging, revetments, and contraction works. Construction of permanent works was suspended in 1902 and snagging operations were suspended in 1943.

The current project for improvement of the river, was authorized by the River and Harbor Act of July 24, 1946 in accordance with the multiple-purpose plan recommended in a report of the Chief of Engineers, Department of the Army, dated September 20, 1945.[3] However, it was due primarily to the efforts of the late Senator Robert S. Kerr of Oklahoma that the project became a reality.

The multiple-purpose plan of development, as approved by Congress and as subsequently modified by congressional action and progressive planning studies, involves the integration of developments for navigation, flood control, hydroelectric power, and related features into a single over-all project. The current project includes a navigation route from a point 15 miles east of Tulsa, Oklahoma, at Catoosa which is on the Verdigris River, a

tributary of the Arkansas, to the Mississippi River and seven multiple-purpose reservoirs located in eastern Oklahoma.

The head of navigation is at Catoosa. The Verdigris River was selected as the upper 52 mile route of the waterway instead of the Arkansas River from Muskogee to Tulsa because the elevation at Catoosa is some 90 feet lower than at Tulsa. Thus, the Verdigris River route requires only three locks and dams, as compared to eleven required for an Arkansas River route above the mouth of the Verdigris River. The plan of development for the Verdigris River provides for the three low-head locks and dams, channel enlargements, cutoffs, and turning basins. Lock sizes would be 84 feet by 600 feet.

The navigation feature of the multiple-purpose plan provides for a channel nine feet deep, canalized throughout its approximate length of 450 miles by a series of locks and dams. Planning has been based on minimum channel widths of 150 feet on the Verdigris River, 300 feet on the Arkansas Post Canal, which connects the Mississippi and Arkansas Rivers and 250 feet on the remainder of the waterway.[4] Bank-stabilization and channel-rectification works to control the meandering of the river are included in the multiple-purpose plan.

Upstream reservoirs which directly serve the navigation feature on the multiple-purpose plan are Keystone on the Arkansas River, Oologah on the Verdigris River, and Eufaula on the Canadian River. Other upstream reservoirs incorporated in and contributing to the proper functioning of the project include Pensacola, Markham Ferry, and Fort Gibson on the Grand (Neosho) River, and Tenkiller Ferry on the Illinois River.

The responsibility for planning, design, construction, and maintenance of the navigation project, including bank stabilization appurtenant thereto, belongs to the Division Engineer, U. S. Army Engineer Division, Southwestern, Dallas, Texas. That part of the project from the Mississippi River to Fort

Smith, Arkansas, will be developed by the Little Rock District and from Fort Smith to Catoosa, Oklahoma, by the Tulsa District.

Responsibility for bank stabilization along the Arkansas River downstream from mile 40, levees on the north and south banks of the river downstream from Pine Bluff, Arkansas, and other work under the Mississippi River and Tributaries project is the responsibility of the President, Mississippi River Commission, Vicksburg, Mississippi.

Three upstream reservoirs, one high-head lock and dam, and bank-stabilization works along the main channel of the river are under construction. If funds are made available to construct the project at a moderate rate, it is proposed to continue development of the project on a basis which would permit navigation from the Mississippi River to Little Rock by 1968, to Fort Smith by 1969, and to Catoosa by 1970. With accelerated appropriations of planning and construction funds, it would be possible to complete the work earlier.

The initial phase of the program consists of continuing construction of the upstream reservoirs (Oologah, Keystone, and Eufaula) and Dardanelle Lock and Dam on the main stem, together with continuation of the remaining bank-stabilization works. Oologah has been completed and will be followed by the completion of Keystone Eufaula, and Dardanelle by 1964.

Construction of the other locks and dams will start in the lower reach of the project within the next few years and will be undertaken in a general upstream order. Continuation of construction on bank-stabilization and channel-rectification works will be phased with other elements of the overall project.

The proper functioning of the multiple-purpose plan is dependent in varying degrees upon seven storage reservoirs on the main stem and upper tributaries of the Arkansas River in eastern Oklahoma. The river in its natural

state presents tremendous problems in making it suitable for navigation, principally because of its low flow during dry periods and because of the heavy sediment load which it deposits in the form of obstructive bars. Studies indicate that the Canadian River and Arkansas River above Tulsa, Oklahoma, contribute more than 70 per cent of the entire sediment load passing Little Rock, Arkansas. Studies further indicate that about 105,000,000 tons of sediment pass Little Rock each year. In recognition of these and other characteristics of the natural river, Keystone, Oologah, and Eufaula Reservoirs have been incorporated to serve the navigation feature of the project directly. Other upstream reservoirs which will contribute to the project are the Pensacola, Markham Ferry, Tankiller Ferry, and Fort Gibson Reservoirs. It is interesting to note that most persons have estimated the dams will be silted in and therefore worthless in 50 years.

Keystone Dam is under construction on the Arkansas River, about 2 miles downstream from the mouth of the Cimarron River and 14 miles west of Tulsa, Oklahoma. The dam will consist of an earth-fill embankment and concrete spillway with a total length of 4,570 feet, rising to a height of 121 feet above the stream bed. The project office and access road are complete and construction of the spillway structure was started in 1960. The reservoir will store water for release during periods of low flow and will store water for release during periods of low flow and will also confer significant flood-control and navigation benefits. The dam will contain facilities for future power.

Oologah Dam is a completed dam on the Verdigris River about 27 miles northeast of Tulsa. The initial development provides for construction of an earth-fill dam 4,000 feet long, rising 129 feet about the river bed. The reservoir will store water for augmenting the flow of the Verdigris and

Arkansas Rivers during dry periods and will furnish flood-control and water supply benefits. The outlet works through the embankment will permit the future installation of power-generating facilities. It should be noted, however, that unless water flows continuously through the dams the potential of hydro-electric power will be greatly curtailed.

Eufaula Dam is under construction on the Canadian River about 27 miles upstream from its confluence with the Arkansas River. The 3,180 foot concrete and earthfill structure will rise about 112 feet above the stream bed. The project office and access road are complete and construction of the spillway structure, power intake, and powerhouse substructure was begun in 1960. The reservoir will serve to store water for release during low flow periods. Flood-control storage will also be provided and the power installation will consist of three 30,000-kilowatt units. The project will provide significant navigation benefits.

The Pensacola, Fort Gibson, and Tenkiller Reservoirs are already completed and in operation for purposes of flood control and production of hydroelectric power, and the Markham Ferry Reservoir will be constructed for the same purposes. Although incorporated in the multiple-purpose plan, two of the reservoirs (Pensacola and Markam Ferry) are non-Federal projects. Pensacola Dam was constructed and Markham Ferry Dam will be constructed by the Grand River Dam Authority, an agency of the State of Oklahoma, under licenses issued by the Federal Power Commission.[5] Flood-control storage is operated under direction of the Corps of Engineers.

The Corps of Engineers has made extensive studies on the navigation features and has developed tentative criteria for elements of the navigation plan. Other pertinent studies have been conducted and are now in progress to produce an over-all project which is sound from an engineering standpoint

and which will yield maximum benefits in all its phases. The continuing program includes studies and investigations on sedimentation, locks and dams, navigation channel, and bank stabilization.

The navigation plan for the Arkansas River from the mouth of the Verdigris River to Pine Bluff, which is within 60 miles of the Mississippi, includes 12 locks and dams, eight of which would be low-head structures and four of which would be high-head navigation-power dams (Webbers Falls, Short Mountain, Ozark, and Dardanelle). All locks will be single lift, 110 feet by 600 feet, with lifts ranging from 10 to 20 feet for the low-head locks and from 24 to 54 feet for the four high-head locks. All dams in this reach of the river, as well as on the Verdigris River, will be nonnavigable; that is, they cannot be opened for open-river navigation. Navigation at all stages will be through the locks.

The navigation route downstream from Pine Bluff will follow the Arkansas River to the vicinity of Arkansas Post. There it will leave the river and continue eastward along an artificial channel (Arkansas Post Canal) for a distance of 9.8 miles to join the lower White River. The route will proceed down the White River 9.2 miles to the Mississippi River. Four locks and dams will be required between Pine Bluff and the Mississippi River. The locks will be single-lift, 110 feet by 600 feet, with lifts of 14 and 20 feet upstream from Arkansas Post and 25 feet each for the two locks in the canal. Navigation at all stages will be through the locks except at Lock and Dam No. 1 which will be located in the canal, just upstream from its junction with the White River. In order to provide navigation between the Arkansas River project and the Mississippi River, where stages fluctuate as much as 60 feet, Dam No. 1 will consist of an overflow weir section which will be utilized for passage of traffic during periods when the lock is flooded by

backwater from high stages on the Mississippi River.

Dardanelle Lock and Dam (Lock and Dam No. 10) is under construction on the Arkansas River, two miles upstream from Dardanelle and about five miles southwest of Russellville, Arkansas. The structure, about 2,700 feet in length, will consist of a gated spillway 1,200 feet long, flanked by the power house and a concrete-gravity section on the south side and a lock and embankment section on the north side. The project office, access roads, left abutment embankment, and initial portion of the navigation lock are complete. Construction of the main dam and spillway was started in 1960. About 70 per cent of the time all the flow of the river will be utilized in the generation of power and for passing barges through the lock. At times when the flow is greater than needed for these purposes, the spillway gates will be opened sufficiently to release the excess water into the channel downstream.

As can be seen from the foregoing paragraphs, the Arkansas River Basin Project is moving toward its completion date of 1970. It will provide a navigable 450 mile waterway from a point near Tulsa to the Mississippi River, in addition to the multipurpose dams.

FOOTNOTES

[1]U. S. Army Engineer District, Tulsa Corps of Engineers, Corps of Engineers Projects: Arkansas, Southern Missouri, Eastern Oklahoma, Little Rock, Arkansas: January, 1959, p. 1.

[2]Loc. Cit.

[3]Loc. Cit.

[4]Arkansas Basin Development Association, Inc., Information Sheet, Tulsa: September, 1962, p. 7.

[5]U. S. Army Engineer District, Tulsa Corps of Engineers, Arkansas River and Tributaries, Multiple-Purpose Plan, Arkansas and Oklahoma, Ologah Dam and Reservoir Verdigris River, Oklahoma (Under Construction), October, 1958, p. 3.

Chapter II

ECONOMY OF THE AREA

The Arkansas River Basin area constitutes about 282,000 square miles, or 180 million acres, in the Southwest portion of the United States.[1] The Arkansas River and it's tributaries, drain approximately one-eleventh of the nation's land area, including all of Oklahoma and parts of Colorado, New Mexico, Kansas, Texas, Missouri, Arkansas, and Louisiana.

There are several outstanding characteristics of the Arkansas River Basin area and some of the more important ones are:

1. Most of the people are classified as rural by the Census Bureau, and the majority of these people are engaged in agriculture.
2. The residents of this area are relatively poor when their per capita income is compared with other states in the Nation.
3. It is an area that may experience floods and droughts in the same year.
4. It is an area that has a relatively stable population in terms of numbers.
5. It is an underdeveloped area industrially.

The reasons for these five outstanding characteristics are many and in many instances, inter-related. To understand why these characteristics exist, it would be essential for us to examine this area in terms of it's physical features and economy.

The purpose of this chapter is to describe the economy of this area and show how the physical environment is related to that economy. In addition an attempt will be made to show how this economy will be affected by the Arkansas River Basin project. This effect will be revealed primarily in terms of the principal types of freight to be carried on the navigable waterway,

the need for flood-control, the potential use of hydro-electric power and industrial water supply, and the benefits to be derived from the increased recreational facilities.

The principal surface features of the Arkansas River basin are: A relatively small extent of high mountains in the west, a large area of low mountains which rise abruptly from the Coastal and Mississippi Alluvial Plains in the east and, between the two mountain areas, a broad expanse of interior lowland sloping gradually from west to east, broken locally by escarpments, hills and the relics of old, eroded mountains. Rivers with sources in areas of precipitous slope change from swiftly flowing to slow and sluggish streams meandering through wide alluvial valleys. During the extended droughts that are characteristic of the western half of the basin, only major rivers maintain continuous flows, while in the humid eastern lowlands, recurring floods frequently spread waters over wide expanses of adjacent lowlands thus explaining why flood-control is an important purpose of this project.

The climate of the area ranges from humid in the east to semi-arid in the west and is characterized by long hot summers and short cold winters. The western half experiences temperature extremes and moisture deficiencies associated with its interior continental location. In the winter there are frequent intrusions of cold, dry continental air from the north; and, in summer, hot, dry winds blow from interior Mexico. The climate of the eastern part of the basin is influenced primarily by the warm, moist air from the Gulf of Mexico.

Annual precipitation averages about 55 inches in southeast Arkansas and eastern Louisiana, but it decreases rather uniformly westward to about 12 inches in the western portion of the basin. As might be expected, severe rainfall deficiencies occur less frequently in the eastern third of the basin.

Severe rainstorms lasting several days are characteristic in the southeastern half of the Arkansas River basin area, again showing the importance of flood-control. Localized floods in the central and western sections result from infrequent but intense rainstorms of short duration. High wind velocities and high evaporation rates are associated with the dry climate of most of the basin associated with the Great Plains and Central Lowland regions.

Most of the Arkansas River basin is grass covered. Tall grasses in the eastern prairie area give way to the short grasses in the semiarid Great Plains and mesquite and other brushy vegetation in less favored locations. The grasses give rise to much of the agricultural products to be shipped on the new waterway that the project will provide. The dark-colored soils of the prairie grasslands have high humus content, and have been leached less than the soils in the humid, forested area. In the Great Plains the soils contain less organic matter, and there is little leaching of plant nutrients. The soils developed in the Coastal Plain area under mixed coniferous and hardwood forests are somewhat acid and contain relatively little organic matter when compared to grassland soils. Surface layers are strongly leached of both organic matter when compared with the grassland soils. The grassland soils thus provide a base for the agricultural commodities grown in this area, which can be shipped via the proposed waterway.

There are about eight million people living in the basin, with a little over half of them classified as rural. Nine cities in the area have population exceeding 50,000. They include Oklahoma City and Tulsa, Oklahoma; Wichita, Kansas; Shreveport, Louisiana; Little Rock, Arkansas; Amarillo and Wichita Falls, Texas; Springfield, Missouri; and Pueblo, Colorado.

Actually this area showed a population decline of four per cent for

the decade, 1940-1950. During the decade of 1950-1960, however, this trend was reversed and the area showed a net increase of four per cent.[2] Thus, its population has remained fairly stable over the past two decades.

The two above paragraphs give an indication of how sparsely settled the area is, and also hints that the economy might be stagnant.

The economy of the basin is dependent upon agriculture as a basic source of income and employment. Mining, the extraction of petroleum and natural gas, and initial processing and refining of minerals constitute more important activities in this area than in most areas of the Nation. Manufacturing expanded rapidly during the war and postwar period but still is much less significant than for the nation as a whole.

In 1960 about one-quarter of the employed work force in the Arkansas River basin was in agriculture, approximately twice the proportion for the Nation.[3] It is significant to note, however, that the proportion of agricultural workers decreased by nearly a half of what it was in 1950. During the same period factory employment rose more rapidly than the national average and constituted one-eighth of the employed work force in 1960.[4] Also in 1960, the trade and service industries, including public utilities and finance employed approximately one-third of the working population. Mineral production and construction industries each provided employment for about four per cent. Miscellaneous activities, including government, accounted for the remainder.

Personal income in the Arkansas River area is below the national level. Seven of the eight states which are partly or wholly in the region had a per capita income lower than the national average in 1960. Only Kansas showed a higher per capita income than the national average for this period.[5]

Recent trends in both total and per capita incomes in the Arkansas River basin states have shown more rapid increases than for the Nation as a whole and a relatively improved position in the national picture. Factors that have contributed notably to this situation include the effects of defense production activities, the establishment of military installations in the area, and the relatively high prices paid for agricultural products during and immediately after World War II when climatic conditions were favorable for agricultural production. Rapid expansion of construction activities following the wartime period has likewise had a stimulating effect on income and employment in the area.

Agriculture is a major activity throughout the Arkansas River basin. About one-third of all the farm land in the basin is cultivated, with wheat, cotton, and grain sorghums constituting the major farm products. Nearly all of the remainder of the farmland is devoted to grazing. Cattle production is important throughout most of the basin and is the predominant activity in the rangelands of northeastern Oklahoma. Grain sorghum production is associated with the livestock industry. The wheat belt extends to northcentral and northwestern Oklahoma. Cotton farms are concentrated in the southern and eastern portions of the basins from the Texas Panhandle through Oklahoma, Arkansas, and Louisiana. Rice, cotton, and soybeans are grown in the fertile soils of the Mississippi Alluvial Plain. General farming is practiced in the remaining areas of the basins.

There are two other important characteristics to note about the size of the farms and they are:

1. On the average, the size of farms and ranches are increasing.
2. The farms and ranches in the western portion of the basin are, on the average, larger than those in the eastern portion.

Almost a third of the Arkansas River Basin is forest land, of which most of it is commercial forest. These forest lands comprise a rather important lumbering region nationally as well as regionally. The most important commercially are the pine-hardwood and bottom land hardwood forests in Arkansas, and eastern Oklahoma.

The most important mineral resources of the Arkansas River Basin are the fuels. Petroleum and natural gas are produced from four areas: The large central region extending south from eastern Kansas through east-central Oklahoma into north Texas; the south Arkansas and north Louisiana areas; the west-central area of Kansas; and the area in the Panhandle of Texas and Oklahoma, and in western Kansas. This area produced a fifth of the oil and a third of the marketed natural gas for the United States in 1960. Large areas of coal or lignite-bearing strata occur in all states of the basin. Coal is not now competitive, except locally, with oil and gas in the fuel market. In recent years bituminous coals of the area have been used increasingly in the manufacture of metallurgical coke for the iron and steel plants of Western States.

The metal mining districts of the basin have contributed significantly to the national output of zinc, lead, and bauxite.

Also it contains extensive deposits of many nonmetallic minerals. Cement raw materials (limestone, clay, shale), building stone, ceramic clays, sand-gravel, and salt are widely distributed. Reserves of asphalt rock, glass sand, gypsum, high-purity dolomite and limestone, tripoli, and volcanic ash are large, but their occurrence is limited to specific areas. These items would constitute a rather sizable amount of the commodities to be shipped on the navigable waterway.

Manufacturing represents a growing and increasingly important segment

of the basin economy. Examination of the Arkansas River area manufacturing within the national setting shows that, despite the recent gains, there is considerable disparity between this region and other parts of the country. The proportion of persons employed in manufacturing is still only about half of the national average.[6]

Manufacturing is concentrated in a few industrial centers in the basin. The ten leading industrial areas have a third of the total manufacturing employment.[7] These areas include Wichita, Kansas; Tulsa and Oklahoma City, Oklahoma; Pueblo, Colorado; Little Rock and Fort Smith, Arkansas; Shreveport and Monroe, Louisiana; and Joplin and Springfield, Missouri.

The manufacturing is concentrated in a few major industry groups, largely those based on the raw material resources of the region. Food products account for about a third of the total manufacturing establishments; lumber products account for a fifth; and the printing and publishing industries account for a sixth.[8]

Although most of the manufacturing establishments are small, there are a significant number of large firms which are of regional and, in many cases, national importance. These include the aircraft assembly plants in Wichita and Tulsa; numerous oil refineries throughout the oil-producing areas of the region; the glass manufacturing centers in Oklahoma and Louisiana; the large poultry and other food-processing plants in northwestern Arkansas and southwestern Missouri; the meatpacking, salt-processing and flour-milling industries in Kansas and Oklahoma; the pulp and paper mills in southern Arkansas and northern Louisiana; the aluminum processing and fabricating plants in Arkansas; the zinc and lead smelting industry in the tristate area of Missouri, Kansas, and Oklahoma; gypsum products manufacturing at Medicine

Lodge, Kansas; the furniture industry at Fort Smith, Arkansas; the large tire plant at Miami, Oklahoma; the chemical fertilizer industry in the Kansas-Oklahoma Grand River area; and the oilfield equipment and machine metal-fabrication plants in Tulsa and Oklahoma City.[9] Nearly all of these products could be important commodities to be shipped by barge. Only the food-processing and glass manufacturing would have to be excluded.

Recent manufacturing trends in the region indicate a broadening of the industrial base with less dependence on the resource-based industries. Significant gains are being made by newer industries which have large potentials for growth, which are high-value added industries and which have been underrepresented in the region in the past. Expansion has also taken place in the established types of industries such as food processing, the various forest-product industries, and petroleum refining.

Industrial expansion in the area was stimulated to a large extent by the industrial defense program during World War II and following the outbreak of the Korean war. While certain hazards are associated with the increased reliance on military production and Government defense expenditures, it is generally believed that the additional basic industrial capacity induced by the defense program will tend to increase related industrial growth and, in the long run, provide a better base for a stronger economy. However, for future industrial expansion the area is counting rather heavily on the future hydro-electric and industrial water supply that the project will contribute.

The tourist and recreation industry constitutes a significant source of income, particularly in the Ozark-Ouachita uplands and around major reservoirs which have been constructed. The more scenic areas, the forests, the fish and game and the natural streams and artificial lakes constitute

recreational resources which are being utilized both by the inhabitants of the basin area and by people from other parts of the United States. In addition, the fish and wildlife provide the basis for commercial fishing and trapping in the eastern part of the basin area. The project will not only provide additional areas in which commercial fishing and trapping may be practiced, but it will also provide recreational facilities for the increasing number of urban centers.

FOOTNOTES

[1]U. S. Congress, 85th Congress, 1st Session, No. 13, Development of Water and Land Resources of the Arkansas - White and Red River Basins, U. S. Government Printing Office, Washington, D. C., 1957, p. 14.

[2]U. S. News and World Report, Seaports for Oklahoma, Feb. 11, 1963, p. 68.

[3]U. S. Congress, op. cit, p. 16.

[4]Ibid, p. 18.

[5]Loc. cit.

[6]Ibid, p. 20.

[7]Ibid, p. 21.

[8]Loc. cit.

[9]Loc. cit.

Chapter III

PROJECT OBJECTIVES

The objectives of the Arkansas River Basin project are numerous, with the majority of them being inter-related. The following objectives are an attempt to outline the more important purposes of the project.

1. Navigation features: attractive for industry and agriculture
2. Additional water supplies: industrial and domestic
3. Water pollution control
4. Flood control
5. Hydro-electric power: industrial and domestic
6. Bank stabilization and channel rectification
7. Conservation of agricultural lands
8. Recreational benefits

In a report published in January, 1959, by the Little Rock District Engineer, it was estimated that the annual benefits which would result from the construction of the Arkansas plan would be as follows:[1]

Savings in transportation charges	$40,470,000
Hydro-electric power value	9,599,000
Flood control benefit	6,688,000
Water supply	1,114,000
Channel stabilization	6,575,000
Other	227,000
Total:	$64,673,000

The prospective annual commerce on the waterway is estimated at about 13,200,000 tons.[2] The navigation benefits or savings in transportation charges represent about 63 per cent of the total project benefits. As can be determined by the above statistics, the chief advantage is expected to be the considerable savings anticipated from barge transportation over

present rail rates in the basin area--ordinarily a high tariff area.

I. E. Chenoweth, manager of the Tulsa Chamber of Commerce traffic and transportation department, estimates that transportation charges on steel from Pittsburgh to Tulsa would cost around $8 a ton to ship by barge compared with the present $23 a ton by rail. Wheat from Tulsa to New Orleans would drop from the $17 a ton to around $4. There would also be an estimated freight savings of $2.30 a ton for rock phosphate and a $1.27 on a ton of sulphur.[3]

Nor is the transportation savings all. The late Robert S. Kerr saw his State as a center of the space industry. The waterway would make that possible as other forms of transportation are currently unable to move the heavy missiles, etc. The gigantic rockets and other hardware required for flights to the moon and beyond could be made in Oklahoma plants and moved down the waterway to any point in the "space crescent" taking shape along the Gulf Coast.

At the time of his death, Mr. Kerr was selling this idea to the space industry. One big space contractor, North American Aviation, Inc., opened a plant near Tulsa in 1962. On January 8, 1963, the company bought 300 acres of land adjoining the inland-waterway port due to open in 1970. North American's planning is reported to be on a scale that eventually will employ 26,000 people. The waterway, said an executive of North American, "will greatly enhance the capability of our Tulsa operations in the Nation's space programs."[4]

In terms of the major project features, there will also be provided about 12 million additional acre-feet of reservoir storage. This, of course,

will be consumed by industrial and domestic purposes alike. Also nearly three out of four rural families in the basin area obtain their water from sources and distribution systems that should be improved in adequacy and efficiency.[5] In contrast to this, if educational assistance, technical services, and adequate financing were fully available to such residents, more than 80 per cent of the rural families could have fully modern water-distribution systems in their houses and farm buildings.[6]

A considerable number of significant benefits can be achieved by a well-integrated comprehensive water-pollution-control plan (the chief causes of water pollution being: salinity, industrial wastes, municipal sewage, and sediment). No monetary evaluations are made because there are no suitable criteria available. Historically, pollution-control programs, affecting the health and welfare as they do, have not required justification on a cost-benefit basis. Benefits, such as these that follow, have been the basis on which millions of dollars have been expended on existing treatment facilities to serve the best interests of the public and the basis on which programs in the basins are being planned or are in progress.

Water pollution control programs are planned engineering programs that, because of the diversity and complexity of problems involved are of necessity long range in scope. Water-quality improvements should be planned well in advance of its need, and thoroughly integrated with other land and water resource conservation and development programs. Obviously, little could be accomplished in water-resource development if this resource were not suitable for the intended uses because of pollution. As an important segment of the overall plan for the conservation and optimum utilization of a vital natural resource, a well-integrated pollution-control program will contribute

substantially to the health and welfare of the people of the basin area by improving the quality and the quantity of this area's industrial and domestic water supplies.

As stated earlier, nearly seven million dollars of the annual benefits forecast by the Corps of Army Engineers falls in the category of flood control. The principal source of this amount, of course, would be the loss of land and personal property caused by the floods, which are quite damaging. Another item of benefit which is impossible to measure in economic terms is the saving of lives from the floods that the project will curb. The reservoirs alone will account for nearly 12 million acre-feet of reservoir storage. Accompanying this project is a program conducted by the Weather Bureau. It is the program of flood forecasting which can save many lives and much property from the flood waters of the Arkansas River.

Hydro-electric power is being generated in the upstream reaches of the project at the Pensacola, Fort Gibson, and Tenkiller Ferry Dams. When the multiple-purpose project is completed and in operation, the average annual potential energy from these dams, together with potential energy from deferred hydroplants at Keystone, Oologah, Webbers Falls, and Ozark Dams, when operated in a system with other hydroelectric powerplants in the region, would be in excess of three billion kilowatt-hours, enough to supply the needs of a city with a population of over a million.[7] The power aspect of the project, excluding benefits from those units where the powerplant has been deferred, represents about 14 per cent of the total benefits to be derived, the second largest source.

This increased power is necessary to fulfill the increasing demands of

both industry and domestic consumption. It is interesting to note that in addition to the matter of connecting remaining farms with electric service, rural electric distributors are receiving increasing demands from farmers and ranches for electric service for irrigation and stock-water pumping. Irrigation from deepwells has increased rather sharply in this area over the last few years. Electricity is not the major type of power used to pump water from these wells, but REA studies and other data indicate that by 1964, there will be about 10,000 farms in the basin area with electric-powered irrigation systems.[8]

Bank stabilization and channel rectification are important features of the over-all project. Such features, of course, would save many acres of valuable land from being washed away and the reconstruction of bridges, etc., because of the river's meandering characteristics. Revetment works, dikes, channel cutoffs, and dredging will serve to secure and stabilize a channel which can be navigated by modern tows and will save many acres of good farmland from loss to the river. All prior construction, representing about one-fourth of the total stabilization work required for the project, was started in 1950, and essentially completed in 1960.[9] Construction is being continued under the over-all program of bank stabilization to provide a suitable channel for navigation. Under this project the Arkansas River will be stabilized from a point just below Short Mountain Dam site in Oklahoma to a point several miles below its junction with the Arkansas Post Canal. The White River portion of the waterway, between the Arkansas Post Canal and the Mississippi River, will also be stabilized. Stabilization of the Arkansas River down stream from river mile 40 will be provided under other authorities. The bank stabilization program is one of the leading contributors to the estimated

annual benefits, accounting for approximately 10 per cent of the total amount to be derived.

The Arkansas River plan includes many projects and programs designed to conserve our agricultural resources. Most benefits from these projects and programs are contingent upon increased agricultural production. In addition, there are many projects and programs in the project that result in significant changes in agricultural production though not designed primarily for that purpose. Often a significant portion of the benefits from such projects dependent upon production changes.

The agricultural economy of the basin, and the Nation as a whole, would be materially affected by the basin plan if the projects and programs would result in production changes of the magnitude and type indicated. Future requirements for the food and fiber expected to result from adoption of the plan is therefore, a major consideration even though there are many other considerations that affect decisions relating to the desirability of projects and programs.

With the expectation that our population will increase by about 32 per cent by 1975, from the 1951-53 average, the ability of agriculture to provide essential food and fiber for our expanding population is of vital importance to all.[10] Therefore, it is of necessity as well as good planning that we conserve our agricultural lands. Estimates of 1975 national requirements for food and fiber for our expanding population, which take into consideration a number of factors such as population growth, real income per person, per capita consumption, changes in eating habits, and exports, indicate a need for a substantial increase in production of many of the major products of the basin.

Opportunities for recreation away from the confining atmosphere of cities depend upon the availability of forests, streams, lakes, mountains, and other natural resources. These resources must be preserved and developed so as to help meet the requirements of the people of the area and the Nation for non-urban, outdoor, leisure time activity.

From the head waters of the Arkansas River in the Rocky Mountains to the mouth of the Red River in the Louisiana bayou country there is a wide diversity of scenery, climate, and opportunities for outdoor recreation. Nature omitted large water areas, but many of these are being created by man.

Associated with the increased participation in sport fishing and hunting has been a corresponding expansion in related economic activities, such as the selling of fishing and hunting equipment, providing tourist accommodations and facilities, and providing transportation to and from the areas of attraction. Today, the Ozark-Ouachita Mountains and large impoundments, service activities for those seeking sport fishing and hunting opportunities constitute an important element of the economy. During the 1954 fiscal year license fees alone amounted to over $12 million in the eight states of the Arkansas River Basin.[11] The other expenditures associated with hunting and fishing are many times this amount.

In terms of major project features, there will be provided about 12 million acre-feet of reservoir storage, 450 miles of new, canalized river, enough hydroelectric power (over three billion kilowatt hours) for a city of a million population, some 235,000 acres of new water surface on the reservoirs, plus the use of adjoining lands and the entire length of the canalized river for public recreation.

Impressive as they are, these project facilities are in a larger sense

only symbolic and their full potential will probably never be realized in this sparsely populated and underdeveloped area. There is even some who feel the dams will be worthless in 50 years because of silting. Actually what this project is doing is providing many features for an area that could not possibly use many of them before the dams become worthless.

FOOTNOTES

[1]Arkansas Basin Development Assoc., op. cit., p. 4.

[2]U. S. Army Engineer District Little Rock, op. cit., p. 4.

[3]Tulsa Daily World, Navigation Plan Called Investment in Future, March 9, 1963, p. 1.

[4]U. S. News and World Report, op. cit., p. 69.

[5]U. S. Congress, op. cit., p. 85.

[6]Loc. cit.

[7]U. S. Army Engineer District Little Rock, op. cit., p. 4.

[8]U. S. Congress, op. cit., p. 120.

[9]U. S. Army Engineer Division, Water Resources Development, Vicksburg, Miss., Jan. 1, 1961, p. 37.

[10]U. S. Congress, op. cit., p. 127.

[11]Ibid, p. 132.

Chapter IV

PROJECT LIMITATIONS

The disadvantages of the Arkansas River Basin Project are numerous and in some instances somewhat related. The following constitute the principal drawbacks to such a project:

1. Unrealistic estimates on projected project revenue
2. High construction and maintenance costs
3. Provides for a duplication of transportation services
4. Development of other forms of transportation to offset the advantages of barge transportation
5. Loss of land to agriculture and industry
6. Implications that the Federal Government will begin regulating inland waterway transportation more than is now currently done
7. Relocation expense
8. "Big Dam Foolishness"
9. Alternative investment possibility

The Corps of Army Engineers has estimated that there will be a savings of approximately $40.5 million due to a reduction of transportation charges made possible by this project. This, of course, will be accomplished by the introduction of barge transportation on the Arkansas River.

As this figure of $40.5 million represents about 63 per cent of the total project benefits, one begins to wonder how the Corps of Engineers arrived at their estimate. The Corps does give one item in indicating how they arrived at this figure and that is that the estimated commerce on the navigable waterway will be in the neighborhood of 13.2 million tons. This would mean that the 13.2 million tons would move over the waterway at an

average savings of nearly $3.07 a ton to produce the figure of $40.5 million. This savings would appear to be reasonable in view of the fact that there is approximately a $5.35 per ton savings of barge over rail for bulk items such as wheat. Such items would certainly comprise the majority of commerce flowing out of the area. These figures are derived from the following facts:

1. It costs $2.65 a ton to move bulk items approximately 600 miles on the Missouri River. (Rates will be similar on the Arkansas)[1]

2. It costs $8.00 a ton to ship bulk items from Tulsa to New Orleans, a similar distance by rail. (This rate is based on the export rate, the domestic rate is twice that of the export rate)[2]

Now that the freight savings per ton has been examined, let us look at a more important question. It is, how did the Corps arrive at their estimate of 13.2 million tons of commerce to be moved annually on the waterway?

According to the Interstate Commerce Commission, Oklahoma exported, by rail alone, 158,668 revenue tons and imported 115,294 tons. Likewise Arkansas exported 129,908 tons and imported 90,578 tons.[3] This brings the total of revenue freight moving in and out of these two states, by rail, to nearly a half-million tons. It is important to note that of this figure of a half-million tons, agricultural products accounted for nearly one-fourth of this total.

To know precisely how many tons of freight might be carried on the Arkansas River, you would have to add to this figure of a half-million the following:

1. All freight moved by other modes of transportation would have to be known.

2. All freight moved on the waterway for the benefit of any state other than Oklahoma and Arkansas.

3. An estimate regarding the increase in freight flow by the year 1970, the date of completion of the project.

A lack of available statistics prevent us from determining exactly how accurate the Corps estimate of 13.2 million tons is. However, it would seem most unlikely that 13.2 million tons of freight would be moving on the waterway in 1970, when today the principal freight transporter of the area, the railroad, only moves approximately 500,000 tons of freight in the two states principally affected by the project--Arkansas and Oklahoma.

Total cost of the project will be at least $1.2 billion dollars, paid out of the U. S. Treasury. Senator Kerr's critics have said it would have been cheaper to pave the Arkansas River. To these critics, the late Senator replied that the waterway would benefit the entire Arkansas River Basin, an area touching seven states and containing eight million people. Now this means that each and every person living in the basin is receiving an average of 150 dollars per person from the Federal government in benefits. However, even though this figure is relatively high, it skyrockets when you estimate that a large number of these eight million people will receive little or no benefit at all from the project.

Senator Kerr also said that this region would develop to rival such great industrial valleys as the Ohio in America and the Ruhr in Germany.[4] It would be extremely difficult to find any substantial evidence to back up such a statement.

By comparison the cost of 1.2 billion dollars is three times that of the Panama Canal and even more than it cost to construct the St. Lawrence Seaway.

The $1.2 billion cost of the project is about one-third of the total sum of $3.5 billion spent by the Federal government so far on all previous multiple purpose navigation projects--of which $3.2 billion went for 32 dams.[5]

On the waterway itself full-time maintenance crews of Government personnel will be working continuously. Dredging will be a continual process, to maintain the channel at minimum project dimensions of nine feet in depth, with a width of 250 feet along the main stem of the Arkansas and 150 feet in the Verdigris River section. Maintenance crews will keep constant surveillance on the channel for signs of shoaling. It is expected that, except for periods of high water, at least one dredge will have to be in operation somewhere on the waterway at all times.

The cost of maintenance of the waterway and operating the locks and dams will be borne by the Federal Government through annual appropriations by the Congress. This probably will average somewhere on the general order of $10 million per year.[6]

Another major disadvantage of such a project is that it provides for a duplication of already existing transportation services. There have been many complaints from the truck and rail lines in the region saying the waterway is unneeded and unnecessary. They also charge that the waterway is a clear example of almost pure subsidization, making it extremely difficult for them to compete with the barge lines.

In addition there is the rather strong possibility that there will be a development of other forms of transportation to offset the advantages held initially by barge transportation. Presently there are strong moves by the truck and rail lines to modernize their equipment and facilities. Another example of this is that of the "pregnant guppy". This is a nickname given to an airplane which has been significantly altered. "It started out as a conventional transport plane, an old Boeing Stratocruiser, which was first ripped apart and lengthened by the Aero Spacelines Company. Then on top of

that, Aero built a tubular tunnel 76 feet long and 20 feet in diameter. In this tunnel, the firm proposes to ferry bulky rocket engines which will not fit on trucks or trains and now have to travel around aboard slow-moving barges."[7]

There is also a significant loss of land for agricultural, industrial, and even domestic purposes. As mentioned in Chapter III one of the provisions called for an additional 12 million acre-feet of reservoir storage. This is a rather substantial amount of water.

There are also implications that the Federal Government will begin regulating inland waterway transportation more than is now currently conducted.[8] At the present time it has been estimated that only about 10 per cent of the inland waterway transportation system is regulated by the Government and there are strong movements to increase this regulation with a corresponding rise in transportation costs probably occurring.[9] The rail and truck lines are the principal proponents for more regulation of the barges.

One of the most difficult of the disadvantages to calculate is that of relocation expense. For an example let us examine one reservoir project. Existing improvements in the Oologah Reservoir area, which require relocation, alteration, or abandonment, consists of State and Federal highways, county roads, the Missouri-Pacific Railroad, gas, oil, power, telephone, and telegraph lines, cemeteries, and the municipal water works at Nowata. The town of Alluwe and the community of Coody's Bluff, located within the reservoir area, are also affected.

"Highway relocations will total approximately 20 miles and county roads, an additional 25 miles. Railroad relocations will include approximately five miles.

A total of about 112 miles of pipelines will require relocation or removal. Electric power lines totaling 134 miles and 111 miles of telephone lines will require relocation or removal.

The Nowata municipal water works will be partly relocated, partly abandoned, and partly utilized at its present location. In addition, there are approximately 800 graves in the reservoir area that will have to be moved to new sites."[10]

This example of the relocation expense created by the Oologah Reservoir is very typical of the other reservoirs in this project.

In his book, Big Dam Foolishness, Elmer Peterson assails the Corps of Army Engineers and the Bureau of Reclamation and their dam building programs.[11] In it Peterson states that flood control can best be accomplished by keeping water where it falls. This is the program advocated by the Soil Conservation Service, and the only one that will work according to Peterson. The big dams are silt catchers and will be useless in 50 years. Yet it is estimated that the final cost of the dams being built in this country may exceed 750 billion dollars.

Probably one of the most serious disadvantages is that of alternative investment possibilities. Should the money have been utilized on a different type of project. The critics of this project would, of course, quickly point to many projects that in their estimation would surely have been much better than sinking $1.2 billion into the rather sparsely settled Arkansas River Basin area. They would say that it would have been cheaper to have built a super highway or highly-efficient and modern railroad adjacent to the Arkansas River, rather than spending money to make the Arkansas navigable, then spending more money every year to keep it navigable.

Although no project can ever secure total support, either pro or con, all feasible projects should be weighed very carefully. Most important of all, the question of which project should be undertaken, should be answered by keeping the whole country in mind rather than mere regional interests.

FOOTNOTES

[1]Federal Barge Company, interview, April 24, 1963.

[2]Rock Island Railroad Company, interview, April 24, 1963.

[3]U. S. Interstate Commerce Commission, Carload Waybill Statistics, 1958, Washington, Nov. 1959, pp. 1-3 and 19-21.

[4]U. S. News and World Report, op. cit., p. 66.

[5]Wichita Eagle, Oklahoma Boom Seen from Arkansas "Seaway", Aug. 2, 1960, p. 4.

[6]Arkansas Basin Development Assoc., op. cit., p. 6.

[7]Life, Tunnel? Train? Nope the Fattest, Ugliest Plane, Nov. 11, 1962, pp. 61-63.

[8]A. W. Wuerker, letter to author, October 10, 1962.

[9]Loc. cit.

[10]U. S. Army Engineer District, Arkansas River and Tributaries, Tulsa, Oklahoma, October 1958, p. 2.

[11]Elmer T. Peterson, Big Dam Foolishness, The Devin-Adair Co., New York, 1954, p. i.

Chapter V

POLITICAL IMPLICATIONS

Many cities want to be a port city merely because of the distinction involved and because "everybody is doing it". Being in favor of such programs also allows the local politicans to remain popular with the majority of the region's voters. The attitude, "if we don't get it someone else will" seems to prevail in the areas where such a project might be undertaken.

Some examples of this are proposed extensions of the Arkansas River Basin project. These proposed extensions are to Wichita, Kansas, and to Oklahoma City and Enid, Oklahoma.

Dr. Stanley J. Grossman, an engineering professor at the University of Oklahoma, has recently stated that a navigable waterway is very possible from Tulsa to Wichita.

The route of Grossman's proposal runs from the Tulsa terminal at Catoosa, Oklahoma, across Bird Creek and Delaware Creek and Keystone Reservoir into the Arkansas River, through the proposed Kaw Reservoir back up the Arkansas to Arkansas City, Kansas, up the Walnut River to Douglass, Kansas, and from Douglass a canal to be built to a terminal point some ten miles southeast of Wichita.[1]

The revolutionary Walnut River proposal (instead of using the Arkansas River the entire distance) was coupled with another unusual suggestion by Grossman--the use of mechanical ship-lifting devices instead of waterlocks at nine points on the waterway route. Grossman said mechanical lifters have not been introduced in America, but have proved successful for many years in Europe.

Grossman said a total lift of 750 feet would be included in the route and that the use of mechanical ship-lifters was less expensive and better suited to conditions near Wichita.

The type of mechanical lift proposed with a marine railway barge lift, which will lift barges and water sideways up a railed incline. Cost of a 100-foot-long lift capable of lifting three barges at once would be near $3½ million. In contrast Grossman stated that a 100-foot waterlock on the Tennessee River cost $35 million.[2]

There are, however, three water locks included in Grossman's plan. They were in areas where a relatively short lift was required.

Speaking before the Wichita Chamber of Commerce, Grossman stated, "without water transportation you will inhibit seriously the growth of your aircraft industry. Because the trend is toward non-manned craft with production requirements demanding transportation unavailable by plane, truck, or rail."[3]

Discussing industrial lures presented by water transportation, Grossman said freight rates for wheat from Wichita to New Orleans would be 18-20¢ per bushel cheaper via barge and petroleum shipping costs $2 per ton less expensive from Wichita to Chicago or St. Louis.

Grossman used the proposed Mississippi River to Tulsa waterway as an example of water transportation's magnetic effect on industry. He said North American Aviation decided to place its Apollo missile plant in Tulsa largely because of the waterway, scheduled for completion in 1967.

The cost of the Tulsa-Wichita route would be near $300 million and in addition there would be the annual maintenance and dredging costs to keep the 175-mile water navigable.

Grossman describes the Wichita extension as being much less fantastic

than the proposed Oklahoma City project, which he said would "bring Eastern Oklahoma's 60-inch annual rainfall--and barges too--- to Oklahoma City--uphill." This 120-mile extension to Oklahoma City from Lake Tenkiller would cost an estimated $550 million.[4]

It seems that nearly any city that connects to the Arkansas River via a river or even a creek is beginning to think of themselves as possible port cities. A good example of this is the city of Enid, Oklahoma.

Enid lies on Bear Creek which proceeds to flow westwardly some 75 miles before it empties into the Arkansas River.

It is not difficult to see that no city, which has a stem that empties into the Arkansas, wants to be left out of things. To them the important thing is to see to it that none of their sister cities gets the jump on them in their race to attract industry. To these cities the economic feasibility of such projects is of little concern when the Federal Government will build the extensions at the expense of the American taxpayer.

From such examples, it is easy to see the two previously mentioned attitudes of "everybody is doing it", and "if we don't get it someone else will", at work.

An interesting editorial entitled "Avast you Lubbers" appeared in the El Dorado Times as follows:

> "We hear of a scheme to make the Arkansas River navigable from Wichita to Tulsa. One item in the plan would be to use the Walnut River from Arkansas City to Douglass as a canal. Now Butler County has got along well enough for about 100 years without having any seaports. But our intelligent planners are straining to eliminate that lack. The cost of dredging out the Arkansas between the two points named might run into a billion or two, with a couple of million more added for the Douglass canal. But what is a double handful of mere money sunk into the beds of a couple of rivers when compared with all the joys and delights accruing from the invigorating smell of the sea breezes. Ship ahoy!" [5]

Some of the Federal spending on public waterworks might be attributed to a "conflict" between the U. S. Army Corps of Engineers and the Bureau of Reclamation. Between these two agencies there is a struggle to determine who will obtain more Federal appropriations than the other. So far the U. S. Army Corps of Engineers seems to have the upper hand.

Actually, both of these agencies are very similar in that they both build dams. However, they differ in the respect as to the purpose of the dam being built. To the Bureau, of course, the principal purpose is that of reclamation of land through irrigation, etc. The Corps, however, has two principal purposes in building dams. They are flood control and navigational features.

This reckless desire to outdo each other seems to breed the wasting of many millions of Federal dollars. For example, the Corps is now spending annually nearly $900 million on their various projects.[6] How long can this go on?

The question of National versus Local interests is a problem that has an unfortunately long history in the United States. It is a problem that is not easily solved. But the first step towards eliminating such a problem is to recognize its existance. The Arkansas River Basin project poses such a question.

Whether the project is in the National interests or only of local importance is a good question. There are many who would support the former view and certainly the latter viewpoint has many proponents. It is interesting to note, however, that most of the project's National interest supporters reside in the Arkansas River Basin area.

These supporters argue that if you make one part of the country strong

you can increase the total strength of the entire country. Their opponents would say this is invalid and that an area experiencing an economic lag, such as the Arkansas River Basin area is, should be depopulated to some extent. The excess population should be moved into areas where it is needed. There should be an effort to eliminate sentimentality when it affects the future of our country.

It can be seen from the above paragraphs that there can be many political implications in any Federal Government project. Because the Arkansas River Basin project is such a project, it is especially susceptible to political maneuvering.

FOOTNOTES

[1]Wichita Eagle, Oklahoman Proposes Waterway to Tulsa, June 21, 1962, p. 3.

[2]Loc. cit.

[3]Loc. cit.

[4]Wichita Eagle, A Start on the Wichita Waterway, June 22, 1962, p. 5.

[5]Where Tides Ebb and Flow, July 3, 1962, p. 3.

[6]Arkansas Basin Development Assoc, op. cit., p. 22.

Chapter VI

CONCLUSIONS

Now that the Arkansas River Basin project has been examined, it is essential to go back to the two questions raised in Chapter I. Those questions were:

1. Is the Arkansas River Basin project economically sound?
2. Has the Federal government given the taxpayer the most for his tax dollar or should the money have been invested elsewhere? (National vs. Local Interests)

In regard to the question of its economic soundness, the research work would seem to indicate that the project is not economically sound. To arrive at such a conclusion is not an easy task. Here is how it was accomplished.

The total cost of the project is estimated at $1.2 billion with an additional $10 million spent annually on maintenance and dredging costs. Now the Corps of Army Engineers estimated annual benefits of the project to be nearly $64.7 million (see chapter III). If you take the annual forecasted benefits of $64.7 million and from that figure subtract the estimated $10 million maintenance and dredging costs, you apparently have a net gain of roughly $54.7 million annually. However, this is not true in that interest costs have not been computed and applied to this project. If we assume an interest rate of five per cent, there will be an interest cost the first year of $60 million. So actually, assuming this five per cent rate, we could say the project will operate at an annual $5.3 million deficit.

Turing to the question of whether the Federal government has given the American taxpayer the most for his tax dollar by the creation of the Arkansas River Basin project instead of something else is a much more difficult question

to answer.

The whole question seems to evolve around the problem of national versus local interests. The question seems to be that of whether the project is strengthening the Nation or only a segment of the Nation. Where does one end and the other begin. To help understand this lets take a look at exactly how the late Senator Robert S. Kerr transformed the Arkansas River Basin project from a dream to an actual, existing project.

It all began when Mr. Kerr became Governor of Oklahoma in 1943. That year, the Arkansas River, swollen by rain, went on a rampage. While directing the cleanup, Mr. Kerr learned that a plan had been drawn up by Army engineers to control the river and make it navigable.

Mr. Kerr started his idea moving by strongly urging Congress and the White House to get the Arkansas River plan started. In 1946, it was authorized by Congress. But nothing had been done on the plan when Mr. Kerr won election to the U. S. Senate, in 1948. Then began the battle to get the project off the drawing boards and under construction.

First, Senator Kerr got assigned to the Rivers and Harbors Subcommittee of the Senate Public Works Committee. This Subcommittee decides on what public-works projects will be recommended to Congress. As a member, Mr. Kerr was able to start a trickle of appropriations into the Arkansas River plan.

In 1955, at the start of his second six-year term in the Senate, Mr. Kerr moved up to become chairman of the Rivers and Harbors Subcommittee. Now he was in a position to bargain with Congressmen from other states to get increased support for the Arkansas River work. In this so-called "logrolling," Senator Kerr proved to be a master.

Appropriations for the Arkansas River project tripled in 1956. By 1960, they had tripled again. By 1962, the project was being funded at the rate of

more than 100 million dollars a year.[1] The date for completion was moved up three years from 1973 to 1970

Mr. Kerr saw nothing wrong with this exercise of political power. He once told a reporter for the Associated Press: "Every Senator and every member of the House represents one or more of our basic elements. That's what representative government is supposed to be. The sum total of those pressures working through Congress is the catalyst that produces our laws. I'm not ashamed of it. I'm proud of it."[2]

It would seem that many of us, Senator Kerr included, have a confused idea of representative government. Surely, it is more than representing a relatively small number of people. This, of course, is very important, but even more important is the welfare of our Nation. It is imperative for every government official to have the Country's needs in his upper mind when it comes time for him to vote or preform any official action. We have reached a place where regionalism is badly outmoded.

Any conclusion concerning this question is extremely difficult to arrive at. However, according to evidence found by this research, it would appear that the Arkansas River Basin project is unfortunately an example of local interests winning over the national interests.

So we have a project that is not economically sound and not in the very best interests of the country. When such a development occurs, clearly the national interests should prevail over any local interests.

This research paper has been an attempt to answer some of the major questions flowing from proponents of the Federal expenditures on public waterworks by using the Arkansas River Basin project as an illustration.

FOOTNOTES

[1]U. S. News and World Report, op. cit., p. 67.

[2]Loc. cit.

BIBLIOGRAPHY

Arkansas Basin Development Assn. An Island Empire Unfolds, Making the Most of the Wonder Element: Water. Tulsa: Arkansas Basin Development Assn., Development Assn., October, 1958.

Arkansas Basin Development Association, Inc. Information Sheet. Tulsa: September, 1962.

"Barge Shipping is Coming to Oklahoma," Business Week. 66:145, November 10, 1962.

Carlson, Senator Frank. Personal Letter. February 18, 1963.

Development of Water and Land Resources of the Arkansas-White and Red River Basins. 85th Congress, 1st session, Document No. 13. Washington: Government Printing Office, 1957.

El Dorado Times, July 3, 1962.

Federal Barge Company, Interview. Kansas City, Missouri, April 24, 1963.

Godwin, Linton A. Personal Letter. October 9, 1962.

Interstate Commerce Commission. Carload Waybill Statistics, 1958. Washington, D. C., November, 1959.

Kansas City Kansan, June 29, 1962.

Mitchell, M. S. Personal Letter. November 2, 1962.

Peterson, Elmer T. (1954) Big Dam Foolishness. Devin-Adair Co., New York.

Rock Island Railroad Company, Interview. Kansas City, Missouri, April 24, 1963.

"'Seaports' for Oklahoma," U. S. News & World Report :66-69, February 11, 1963.

Strnad, Lud W. Personal Letter, February 8, 1963.

The Wichita Eagle, August 2, 1960 - March 18, 1963.

Tulsa Daily World, March 8 - 9, 1963.

U. S. Army Engineer District. Arkansas River and Tributaries, Multiple-Purpose Plan, Arkansas and Oklahoma. Little Rock, Arkansas: February, 1961.

U. S. Army Engineer District, Tulsa Corps of Engineers. Arkansas River and Tributaries, Multiple-Purpose Plan, Arkansas and Oklahoma, Eufaula Dam and Reservoir Canadian River, Oklahoma (Under Construction). Revised, November 1, 1960.

U. S. Army Engineer District, Tulsa Corps of Engineers. Arkansas River and Tributaries, Multiple-Purpose Plan, Arkansas and Oklahoma, Keystone Dam and Reservoir Arkansas River, Oklahoma (Under Construction). March, 1961.

U. S. Army Engineer District, Tulsa Corps of Engineers. Arkansas River and Tributaries, Multiple-Purpose Plan, Arkansas and Oklahoma, Oologah Dam and Reservoir Verdigris River, Oklahoma (Under Construction). October, 1958.

U. S. Army Engineer District, Tulsa Corps of Engineers. Corps of Engineers Projects: Arkansas, Southern Missouri, Eastern Oklahoma. Little Rock, Arkansas: January, 1959.

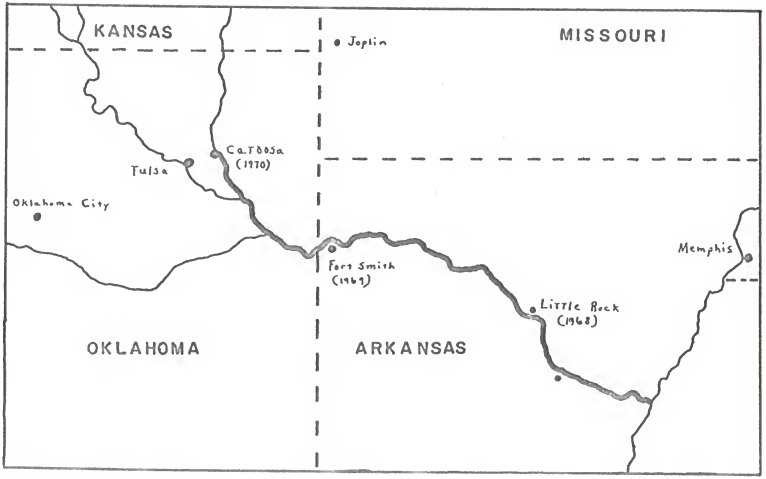
U. S. Army Engineer Division, Lower Mississippi Valley, Corps of Engineers. Water Resources Development in Arkansas. Vicksburg, Mississippi: January 1, 1961.

U. S. Congress, House of Representatives, Committee on Appropriations. Public Works Appropriations for 1963, Hearings. 87th Congress, 2nd Session, Part 2. Washington: Government Printing Office, 1962.

U. S. Congress, House of Representatives, Committee on Appropriations. Public Works Appropriations for 1963, Hearings. 87th Congress, 2nd Session, Part 3. Washington: Government Printing Office, 1962.

Wuerker, A. W. Personal Letter. October 10, 1962.

THE ARKANSAS RIVER "SEAWAY"



SOURCE : U. S. NEWS & WORLD REPORT - FEB. 11, 1963

SCALE

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THE ARKANSAS RIVER BASIN PROJECT

by

JERRY DON CROFT

B. A., Oklahoma State University, 1962

AN ABSTRACT OF A REPORT

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The Federal government is currently spending billions of dollars in developing this country's inland water resources. The primary benefit to be derived from these multi-purpose projects is often the resulting transportation feature of a navigable waterway. It is the purpose of this Report to describe such a project: The Arkansas River Basin Project.

The current project for improvement of the river was authorized by the River and Harbor Act of July 24, 1946 in accordance with the multiple-purpose plan recommended in a report of the Chief of Engineers, Department of the Army, dated September 20, 1945. However, it was due primarily to the efforts of the late Senator Robert S. Kerr of Oklahoma that the project became a reality.

The multiple-purpose plan of development, as approved by Congress and as subsequently modified by congressional action and progressive planning studies, involves the integration of developments for navigation, flood control, hydro-electric power, and related features into a single over-all project. The current project includes a navigation route from a point 15 miles east of Tulsa, Oklahoma, at Catoosa which is on the Verdigris River, a tributary of the Arkansas, to the Mississippi River and seven multiple-purpose reservoirs located in eastern Oklahoma.

The head of navigation is at Catoosa. The Verdigris River was selected as the upper 52-mile route of the waterway instead of the Arkansas River from Muskogee to Tulsa because the elevation at Catoosa is some 90 feet lower than at Tulsa. Thus, the Verdigris River route requires only three locks and dams, as compared to eleven required for an Arkansas River route above the mouth of the Verdigris River.

The purpose of this Report is to examine the project carefully and then attempt to answer the following two questions.

1. Is the Arkansas River Basin project economically sound?

2. Has the Federal government given the taxpayer the most for his tax dollar or should the money have been invested elsewhere? (National vs. Local Interests)

In regard to the question of its economic soundness, the research work would seem to indicate that the project is not economically sound. To arrive at such a conclusion is not an easy task. Here is how it was accomplished.

The total cost of the project is estimated at $1.2 billion with an additional $10 million spent annually on maintenance and dredging costs. Now the Corps of Army Engineers estimated annual benefits of the project to be nearly $64.7 million. If you take the annual forecasted benefits of $64.7 million and from that figure substract the estimated $10 million maintenance and dredging costs, you apparently have a net gain of roughly $54.7 million annually. However, this is not true in that interest costs have not been computed and applied to this project. If we assume an interest rate of five per cent, there will be an interest cost the first year of nearly $60 million. So actually, assuming this five per cent rate, we could say the project will operate at an annual $5.3 million deficit.

Turning to the question of whether the Federal government has given the American taxpayer the most for his tax dollar by the creation of the Arkansas River Basin project instead of something else is a much more difficult question to answer.

The whole question seems to evolve around the problem of national versus local interests. The question seems to be that of whether the project is strengthening the Nation or only a segment of the Nation. However, according to the evidence found by this researcher, it would appear that

the Arkansas River Basin project is unfortunately an example of local interests winning over the national interests.

So we have a project that is not economically sound and not in the very best interests of the country.